



The Independent Communications Authority of South Africa  
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**Per email:** [rmakgotlho@icasa.org.za](mailto:rmakgotlho@icasa.org.za)

Dear Mr. Makgotlho,

**RE: COMMENTS ON THE DRAFT RADIO FREQUENCY MIGRATION PLAN 2018**

1. Transnet SOC Ltd ("Transnet") herein provides comments on the Draft Radio Frequency Migration Plan 2018, as published in Government Gazette 41854.

**GENERAL COMMENTS**

2. The Draft Plan provides that a change in the use of a radio frequency spectrum band(s) must be initiated through a Radio Frequency Spectrum Assignment Plan in the manner specified in the latest Radio Frequency Spectrum Regulations.
3. Notably, the Authority published the Final Radio Frequency Spectrum Assignment Plan for Band 450 to 470 MHz in Government *Gazette* Number: 38640 dated 30 March 2015 ("the Final Plan"). The Final Plan provides for the requirements for the utilisation of the frequency band between 450 to 470 MHz in South Africa and information on the requirements attached to the use of a frequency band in line with the allocation and other information in the National Radio Frequency Plan. This information includes technical characteristics of radio systems, frequency channelling, coordination and details on required migration of existing users of the band, and the expected method of assignment.
4. In terms of the Final Plan, the Frequency Band 450 to 470 MHz was identified for International Mobile Telecommunications ("IMT"). The Final Plan provides that the channel arrangements are based on the Recommendations of International Telecommunications Union ("ITU") – RM.1036-4. The Final Plan further provides that the channel arrangement for South Africa will be one of either D2, D3, D4 or D5. The current incumbents in the Band are to vacate and make way for IMT technologies. Transnet was provided the option of vacating or shifting within the Band if it could show the possibility of co-existence with

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other telecommunications providers. For ease of reference, Figure 2 which was published in the Final Plan, is included below:

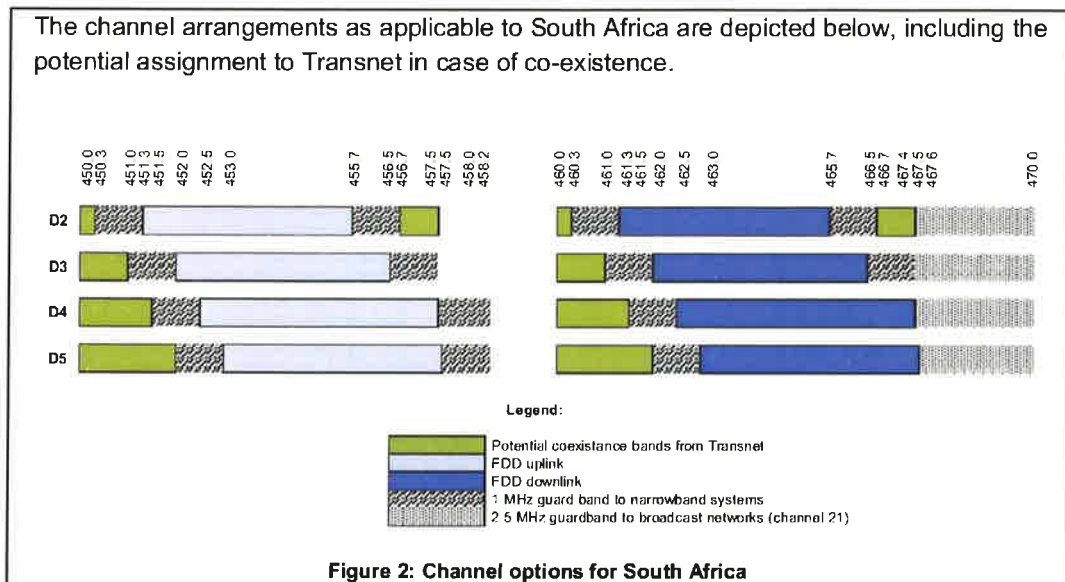


Figure 2: Channel options for South Africa

5. In order to fulfil the latter requirement, Transnet issued a Request for Information on 18 October 2015 for a Digital Radio Solution to the telecommunication market, seeking suitable technology. The results of this exercise have resulted in the need to perform a Proof of Concept of two technologies, namely Long Term Evolution ("LTE") and Digital Mobile Radio ("DMR").
6. Transnet applied to the Authority for a test license for broadband spectrum in the 450 – 470 MHz band. The application was for a 3 MHz bandwidth test licence to trial LTE, Frequency Division Duplex technology. Whilst the Authority issued Transnet with trial licence in the 3 MHz band, challenges were experienced with suppliers who only had equipment which could operate in the 3<sup>rd</sup> Generation Partnership Project standard band. Transnet had to therefore reapply for Band 31 within the 450 – 470 MHz band. On 09 April 2018, the Authority issued Transnet with a trial licence. Transnet has since successfully conducted tests of LTE which is an IMT technology.
7. The Draft Plan currently only makes reference to the Government *Gazette* Number 38640 at page 49 of 198, without giving context to its status. In view of the fact that Transnet has already commenced with the process of migrating in accordance with the Final Plan, Transnet requests that the Authority explicitly state in the Draft Plan that Transnet still has

the option of vacating or shifting within the Band, if it can show the possibility of co-existence with other telecommunication providers.

## **SPECIFIC COMMENTS**

### **Part 1: Frequency Migration Regulations Overview**

#### **Ad paragraph 4: Principles**

8. It appears that there is duplication in paragraph 1 and 2. Paragraph 1 provides that the *"Radio Frequency Spectrum migration must be in accordance with the Radio Frequency Migration Plan"* whilst paragraph 2 provides that the *"Radio frequency spectrum must be consistent with the National Radio Frequency Plan"*. Transnet recommends that the above paragraphs be reviewed and consideration given to deleting either paragraph 1 or 2 in order to rectify such duplication.

### **Part 2: Draft Radio Frequency Migration Plan**

#### **Ad paragraph 1.2.2 Defining Spectrum Migration**

9. Transnet recommends the phrase "band" be added to this definition in order to ensure completeness of the definition.

The proposed amended definition will read as follow:

*"Radio Frequency Spectrum Migration means the movement of users or uses of radio frequency spectrum from their existing radio frequency spectrum location to another band".*

#### **Ad paragraph 3.2: Process**

10. This Clause provides that when it has been established that migration is required, the critical issue is to determine the timeframe in a manner consistent with *"sound radio frequency spectrum management"*. It is unclear in the Draft Plan as to what constitutes *"sound radio frequency management"*, and this is a concept which may be open to many interpretations. It is vitally important that frequency migration is not be done in a manner that will increase the cost of doing business in the country as the costs incurred by holders

of licences passed on to consumers. In line with this spirit it is recommended that the last paragraph of this Clause is amended as follows:

*"When it has been established that migration is required, then the critical issue is to determine the time frame in a manner consistent with sound radio frequency spectrum management, in accordance with proper governance processes, whilst at all times trying to minimise adverse financial and operational impacts to affected stakeholders."*

### **Ad paragraph 3.3: Timeframe for Migration**

11. The introductory wording of the above paragraph provides that *"the Authority can migrate a user to another location..."*. It is recommended that the word *"location"* is replaced with *"frequency band"* so as to ensure consistent application of terminology throughout the Draft Plan.

The sentence will therefore read as follows:

*"In principle, the Authority can migrate a user to another frequency band....."*

The Draft Plan provides for factors to be considered in determining the timeframe of migration. Transnet recommends for the inclusion of the following factor:

- "Cost of migration and economic impact of migration to the country. For example, migration from analogue to digital will cost more than R3 billion to some of the licensees."

### **Ad paragraph 3.3.5: Conclusions regarding timeframe**

12. It appears from the Draft Plan that the forward looking timeframe for a process of spectrum migration will be between 3 to 5 years from the moment of announcement, unless otherwise specified. It is important to note that organs of state/public entities are also required to migrate, and 3 to 5 years might not be feasible as these institutions are highly regulated. For example, public entities are required to follow procurement processes when procuring goods and/or services which are informed by various regulatory requirements, i.e. the Preferential Procurement Policy Framework Act, 2000, Preferential Procurement Regulations, 2017, and the Public Finance Management Act, 1999 ("the PFMA").

Depending on the costs of migration, Ministerial approvals may also be required in terms of the PFMA, and further to that, the migration might also require a licensee to undertake construction (i.e. backbone infrastructure may need to be changed), which will require other licences from other Government Departments i.e. a water use licence from the Department of Water and Sanitation which will take more than 12 months to process, and Environmental Authorisation from the Department of Environmental Affairs may take up to two years to process.

Transnet recommends that the timeframe for migration should be at least 7 – 10 years. This will be consistent with the South African Band Re-Planning Exercises (SABRE 2) migration which took place from 2000 to 2007, where migration was from Very High Frequency to Ultra High Frequency.

**Ad paragraph 4.10.2: 138 – 144 MHz**

13. It is important to note that the Authority has on 23 March 2018 published the Final Radio Spectrum Assignment Plan for the above Frequency Band. The Final Plan came into operation on the aforementioned date. Transnet had previously submitted comments on the Draft Frequency Spectrum Assignment Plan, 2017.

In its submission, Transnet indicated that it is currently using 2 x channels in this frequency band for voice communication in electrical coaches (field testing simple frequency 141.1125 MHz), and on the Blue Train, simplex frequency 131.0625 MHz. Transnet had recommended that if the existing frequency spectrum for Single Frequency Mobile were to be revoked, the Final Plan should make provision for the destination band and the revocation should take effect on 31 March 2020, so as to give the existing users of the band ample opportunity to migrate to the new band. It is worthy to note that Transnet also makes use of the Very High Frequency 138.8500 MHz band paired with the 142.0125 MHz – 12.5 KHz band under licence number 2515425.

Transnet comments were not considered in the Final Plan. The Final Plan does not provide for a destination band to existing radio frequency licensees. It can be inferred that existing licensees have been revoked as from 31 March 2018. Therefore, Transnet recommends that the Draft Plan should make provision for a destination band for those whose licences were revoked as from 31 March 2018.

**Ad paragraph 4.10.12: 440 – 450 MHz**

14. Transnet has noted the following statement in the Draft Plan: "*other users will have to migrate out of the band and the rest of the users can stay as is in the band*". It is unclear from the Draft Plan as to who are the users required to migrate out of the band and who will stay in the band. Transnet recommends that the Draft Plan should be clear and unambiguous on this matter.

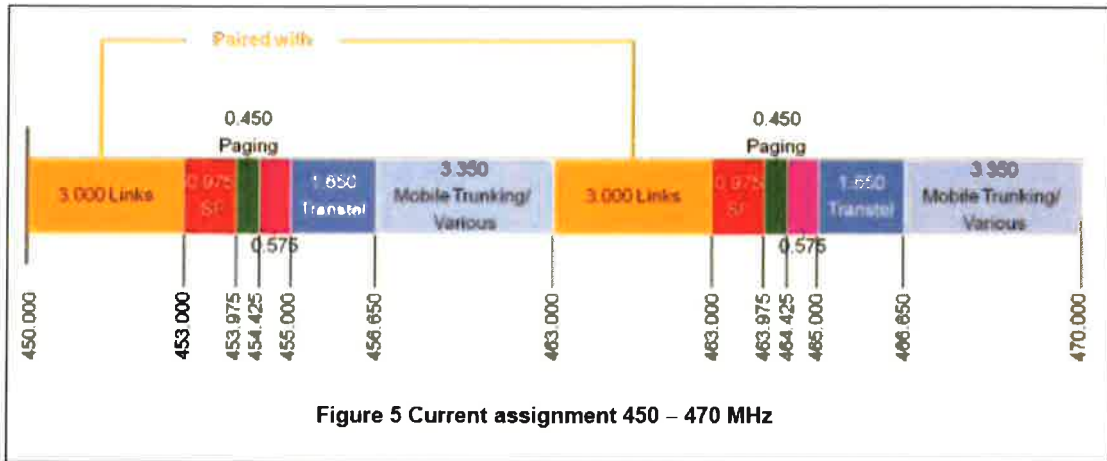
**Ad paragraph 4.10.13: 450 – 470 MHz**

15. Transnet operates a scheduled rail service on a national basis making use of Frequency Spectrum for radio communication to move its trains safely, and to prevent any dangers to human life or damage to the infrastructure. This is similar to the Aviation industry which controls the Airways' landing and departure of airplanes via radio communication, or Maritime ship station radio communication. Transnet currently utilise 3.6 MHz of this band, and although the Authority spectrum audit shows that the usage is quite low, no train will be able to move without this radio communication.

Figure 5 below makes reference to Transtel. Transnet recommends that the correct reference be made. Transtel should be changed to Transnet.

Transnet further notes that the Draft Plan provides that, in view of the other spectrum that has been identified for IMT, it was decided to migrate the current users out of this band into the radio frequency 3 GHz and above. The proposed migration of the current users into the frequency 3 GHz and above, will not be technically and financially feasible for national long distance roll out, as in the case of Transnet.

It is noteworthy that the frequency band above 3 GHz is not permitted in the Square Kilometre Array ("SKA") area, and Transnet have railway lines that transverses in that area. The implication is that Transnet will not be able to move trains in that area since the radiation of frequencies above 3 GHz would be detrimental to the SKA project. The range of the frequency band above 3 GHz is very limited and not practical in Transnet's environment. Transnet recommends that the current user should migrate to the IMT as per Government *Gazette* Number: 38640 dated 30 March 2015, or the Final Plan.



**Ad paragraph 4.25: 1980-2010/2170-2200 MHz**

- 16. Reference is made that Transnet is currently utilising this band. Transnet has relinquished the spectrum licence during the SABRE 2 migration. Therefore, reference to Transnet should be deleted.

**Ad paragraph 5.3: Other Migration issues**

- 17. Table 5 provides a summary of other migration issues. It has been noted that the 450 – 470 MHz frequency band is to be cleared of all other users. Transnet supports the view that the band should be IMT based, however the current users of the band may use IMT technology if they would like to remain in the band.

**Ad Appendix G: Technical Investigation**

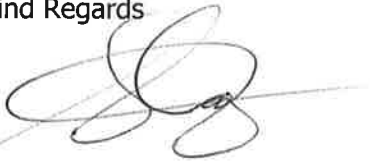
- 18. Items 7 and 8 of the frequency band table refers to Terrestrial Trunked Radio (TETRA) and Transnet has in the past indicated that this technology is close to the end of its life cycle with little data capabilities and therefore not under consideration. Transnet recommends that TETRA as a recommended technology should be reconsidered.

7	406 to 426 MHz	RFSAP to be developed (Destination band for Transnet)
8	410 to 413 MHz paired with 420 to 423 MHz	RFSAP to be developed (Destination band for Transnet)

Under item 13 of the table, it has been noted that reference is made that band 31 was identified for trial by Transnet. Transnet has successfully applied for trial licences and the results were positive for the implementation of IMT technology.

19. We thank you for the opportunity to provide comments on the Draft Radio Frequency Migration Plan 2018. Please be advised that Transnet requests an opportunity to make oral representations at the public hearings to be held on 25 and 26 October 2018.

Kind Regards



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Acting Chief Corporate and Regulatory Officer

Date: 09/10/2018

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